

## C L A I M S

1. An optical semiconductor module comprising:  
a mounting member extending along a reference  
plane intersecting a predetermined axis;

5 a first member having a tubular portion, a first  
end portion and a second end portion, said tubular  
portion extending in a direction of the predetermined  
axis, said first end portion being provided at one end  
of the tubular portion and being arranged on said  
10 mounting member, and said second end portion being  
provided at the other end of the tubular portion;

an optical semiconductor element arranged in the  
tubular portion of said first member such that an  
optical axis thereof is directed in a direction of the  
15 predetermined axis;

a second member having a tubular portion  
extending in a direction of the predetermined axis,  
said second member being arranged on the second end of  
said first member; and

20 an optical waveguide optically coupled to said  
optical semiconductor element, said optical waveguide  
extending in the tubular portion of said second member.

2. An optical semiconductor module according to  
claim 1, further comprising a ferrule accommodated in  
25 the tubular portion of said second member,

wherein said optical waveguide includes an

optical fiber supported by said ferrule.

3. An optical semiconductor module according to claim 2, further comprising a third member having a tubular portion and a pair of openings, said tubular portion extending in a direction of the predetermined axis and accommodating said second member and said ferrule, and said pair of openings being provided at two ends of the tubular portion;

wherein the optical fiber extends through one of the pair of openings of said third member to reach said ferrule.

4. An optical semiconductor module according to claim 2, wherein said ferrule has first and second end faces, and the optical fiber extends from the first end face to the second end face of said ferrule.

5. An optical semiconductor module according to claim 4, further comprising a sleeve, said ferrule is inserted in said sleeve;

wherein said second member has a depressed portion provided in an inner wall surface of the tubular portion, and

wherein said sleeve being arranged in the depressed portion of said second member.

6. An optical semiconductor module according to claim 2 or 4,

wherein the tubular portion of said second member has first and second portions arranged in a direction of the predetermined axis,

5 wherein the first portion accommodates said ferrule, and

wherein the second portion is provided such that another ferrule can be inserted therein.

7. An optical semiconductor module according to claim 1, further comprising a lens provided between  
10 said optical waveguide and said optical semiconductor element.

8. An optical semiconductor module according to claim 1, wherein said optical semiconductor element is  
15 either one of a light-emitting element and a light-receiving element.

9. An optical semiconductor module according to claim 1, wherein said first member is secured to said  
20 mounting member at an annular connecting portion provided to surround the optical axis of said optical semiconductor element.

10. An optical semiconductor module according to claim 1, wherein said mounting member is included in a  
25 cylindrical shape having a diameter of not more than 4 mm and a center axis perpendicular to the reference surface.